REMARKS

Preliminarily, we point out that the present action does not include initialled copies of the PTO-1449 Forms submitted with our Information Disclosure Statements filed November 25, 2001 (filed together with the utility application) and April 25, 2003. For the Examiner's convenience, we enclose additional copies of those PTO-1449 Forms together with this reply, and ask the Examiner to initial each citation therein and return the initialled copies to us with his next communication.

Also, we point out that the present action does not acknowledge the priority claim under 35 U.S.C. 119(e) of the present application to provisional application 60/243,565 filed October 26, 2000, as indicated in the attached filing receipt. We ask that the Examiner acknowlegde this priority claim in his next communication.

Presently, claims 1-7, 9-11, 13, 15-17, 20, 21, and 23 are under examination, with claims 8, 12, 14, 18, 19, 22, and 24-44 withdrawn from consideration following a species election. Of the claims being examined, only claim 1 is independent.

All of the examined claims stand rejected as anticipated by Schimpe (U.S. Patent 4,743,083). For example, the action points to FIGS. 16A and 16B in Schimpe as anticipating independent claim 1. We traverse.

We submit that Schimpe fails to describe or suggest "a dielectric waveguide extending along a longitudinal axis and having a refractive index cross-section <u>perpendicular</u> to the longitudinal axis, the refractive index cross-section causing the dielectric waveguide to support an electromagnetic (EM) mode having a group velocity that passes from negative values to positive values over a range of non-zero longitudinal wavevectors," as recited in claim 1 (emphasis added).

Indeed, the action fails to point specifically to a "longitudinal axis" or a "refractive index cross-section perpendicular to the longitudinal axis" in Schimpe. Moreover, the action makes no mention whatsoever of where or how Schimpe anticipates "the refractive index cross-section causing the dielectric waveguide to support an electromagnetic (EM) mode having a group velocity that passes from negative values to positive values over a range of non-zero longitudinal wavevectors," as recited in claim 1.

Despite such shortcomings in the action, we nonetheless explain below why the laser device shown in FIGS. 16A and 16B of Schimpe is fundamentally different from what is claimed in claim 1.

FIGS. 16A and 16B of Schimpe describe a device with a planar waveguide. For example, the central part of the planar waveguide is defined by central active layer 308, which is surrounded by upper confinement layer 318 and upper cladding layer 320 on one side and lower confinement layer 322 and lower cladding layer 324 on the other side (see Schimpe at col. 21, lines 62-68). An outer grating 377 surrounds the periphery of the central part of the planar waveguide and includes a modulation that extends parallel to the waveguide (see, e.g., FIGS. 16A and FIGS. 16B and col. 25, lines 40-43). Outer grating 377 causes the electromagnetic energy to build up in in the central part of the waveguide. For example, Schimpe states that the device of FIGS. 16A and 16B is similar to the device of FIGS. 12A and 12B, which in turn is based on the resonator design of FIG. 1A, about which Schimpe states: "In the region of the outer part 22 of the diffraction grating, the EMR [electromagnetic radiation] is back reflected towards the center of the grating" and "[R]ays 36 [which are propagage along the planar waveguide] ... are reflected back by the grating in the plane of the waveguide" (see, FIG. 1A, col. 6, lines 35-45, col. 6, lines 59-62; col. 21, lines 32-33; and col. 25, lines 38-40).

Therefore, even if the planar waveguide in FIGS. 16A and FIGS. 16B supports "an electromagnetic (EM) mode having a group velocity that passes from negative values to positive values over a range of non-zero longitudinal wavevectors," as recited in claim 1, that mode is caused by outer grating 377, whose modulation extends parallel to the planar waveguide itself. In contrast, claim 1 requires such a mode to be caused by "a refractive index cross-section perpendicular to the longitudinal axis [of the waveguide]."

Accordingly, we submit that the invention of claim 1 is fundamentally different from the laser device of FIGS. 16A and 16B in Schimpe. The distinction is exemplified by the following passage from applicants' specification at page 2, lines 10-14:

> "The presence of the mode having the zero group velocity crossing is caused by an index modulation perpendicular to the longitudinal axis. In other words, the zero group velocity mode can be present even when the dielectric structure has

> continuous translation symmetry along its longitudinal axis. Such symmetry is equivalent to the structure having a uniform cross-section." (emphasis added)

We submit that the remaining claims under examination are patentable over Schimpe for at least the same reasons as those above for claim 1.